

# Urban Water Reuse in Orange County



Pollution Hotline



Stormwater Program



Watersheds



Public Education



Rainfall & Weather



Who We Are

Richard Boon  
County of Orange – OC Watersheds  
June 17, 2009

# Urban Runoff

*There are four interrelated but separable effects of land-use changes on the hydrology of an area: changes in peak flow characteristics, changes in total runoff, changes in quality of water, and changes in the hydrologic amenities.*

Luna Leopold, 1968

# Beneficial Uses of Urban Runoff

## Regional

- Water Supply
  - ◆ Managed Aquifer Recharge
- Irrigation Water Supply
  - ◆ Urban Runoff Recovery (2)
- Environmental Amenity
  - ◆ Habitat Creation

## Site

- Project Aesthetics & Economics
  - ◆ LID Project

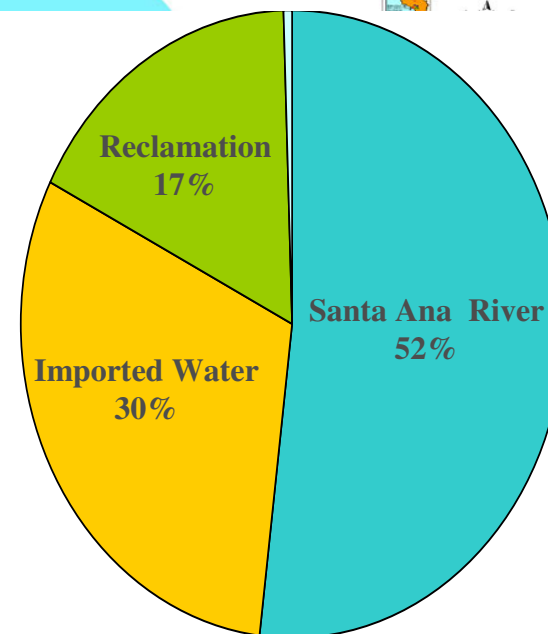
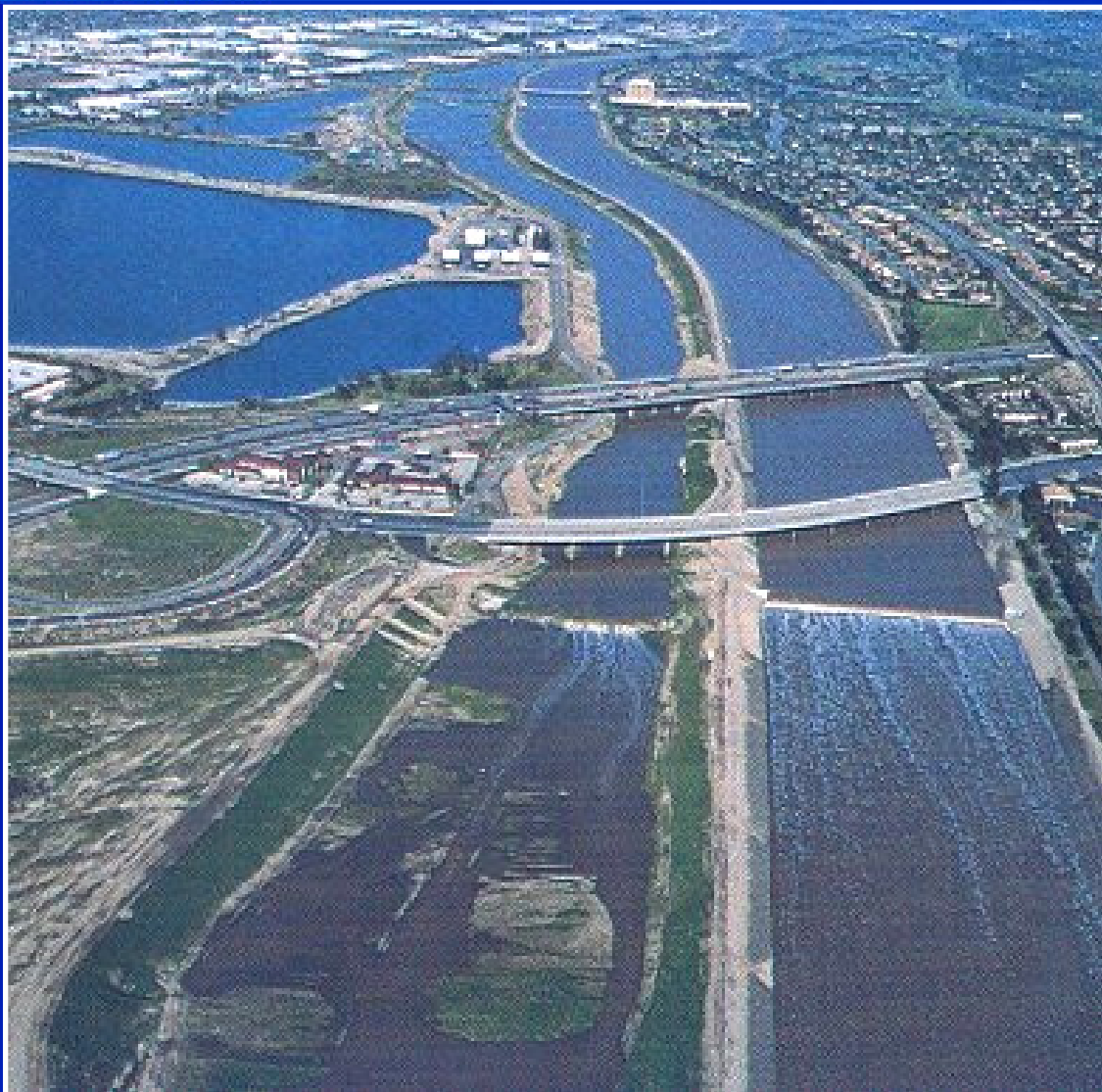
# Water Supply

Starting in 1936 OCWD began purchasing sections of the Santa Ana River for recharge. System currently comprises 1600 Acres including:

- ♦ 6 Miles of Santa Ana River
- ♦ 22 Recharge Basins
- ♦ Annual Recharge averages 250,000 AFY
- ♦ Storage Capacity = 26,000 AF



# Water Supply



# Water Supply

- Two inflatable rubber dams on SAR
- Deflated to allow flood flows in river
- Inflated to capture flows for groundwater recharge
- Rubbers dams allow OCWD to divert flows from the river immediately after peak storm flows subside
- Dams allow up to 1,000 cfs of diversion
- OCWD recharges 100% of the baseflow of the SAR



# Water Supply

## Benefits

- ♦ Water Supply- Capture 50,000 AFY of stormwater
- ♦ Wildlife Habitat
- ♦ Recreational Amenity

# Irrigation Water Supply

## South Coast Water District

- Aliso Creek Urban Recovery, Reuse, and Conservation Project

## Santa Margarita Water District

- Urban Runoff Diversions

# Aliso Creek Urban Runoff Recovery, Reuse, and Conservation Project

Proposes capture of ~800,000 gpd from Aliso Creek 1.5 miles from confluence with Pacific Ocean.

## Benefits

- ♦ Increase and improve recycled water supply
- ♦ Improve Aliso Creek Beach and Recreation Area (Diverts 1.23 cfs of dry season flow)
- ♦ Help restore Aliso Creek to Natural Condition



# Urban Runoff Diversions

Oso Creek Barrier : 1120 AF (below)

Horno Creek: 322 AF

Dove Canyon: 200 AF (next slide)



# Urban Runoff Diversions



## Benefits

- ◆ Provides 1642 acre-feet annually for irrigation
- ◆ Protects sensitive ecological habitat (e.g. Starr Ranch)

# Environmental Amenity

City of Costa Mesa (USACOE, OCFCD & County of Orange project partners)

- ♦ Fairview Park Wetlands & Riparian Habitat Project



# Fairview Park Wetlands & Riparian Habitat Project (I)



# Fairview Park Wetlands & Riparian Habitat Project (II)

## Benefits:

- Enhance Habitat Diversity in The Park
- Restore Historic Habitat Types of the Santa Ana River
- Increase Water Quality of Wet and Dry Season Runoff
- Diversify Recreation Within Open Green Space
  - ◆ Trails
  - ◆ Wildlife Experiences



# Project Aesthetics & Economics

LAB Holding LLC, Costa Mesa

- ♦ “The Camp” shopping center (4 acres)

# The Camp



# Observations

There is a need for both new visions of highly modified urban watersheds and opportunities for local stakeholders to invigorate Basin Planning

Agencies are struggling to develop appropriate strategies to address non-point solution and urban runoff (esp. quantity) in particular

Regional approaches that offer equivalent benefits should not be eschewed in favor of site-by-site approaches

# Questions

Thank You

[www.ocwatersheds.com](http://www.ocwatersheds.com)

office: 714 955 0670

24-hour hotline: 877 89 SPILL